United Nations A/73/351

General Assembly

Distr.: General
30 August 2018

Original: English

Seventy-third session
Item 137 of the provisional agenda*
Programme budget for the biennium 2018–2019

Proposal for the renovation of the North Building at the Economic Commission for Latin America and the Caribbean in Santiago

Report of the Secretary-General

Summary

In section V of its resolution 72/262 A, the General Assembly approved the scope of work of the project for the renovation of the North Building at the Economic Commission for Latin America and the Caribbean in Santiago as it relates to seismic mitigation, took note of the overall scope and estimated maximum project cost, and requested the Secretary-General to refine the proposal and provide a detailed analysis of the range of possible options to meet the objectives described in his report contained in document A/72/367, in particular those relating to energy efficiency and reducing the environmental impact of the building's operation.

The present report provides an update on the progress made on the project since the previous report of the Secretary-General (A/72/367), including confirmation of the initial seismic design, the establishment of the stakeholders committee as a key aspect of the overall governance structure, the recruitment of the dedicated Project Manager and the sourcing of the independent risk management consultancy services. In addition to the detailed cost analysis, information on several other design objectives of the project is provided, including space efficiency, energy efficiency and accessibility for persons with disabilities.

It is recommended that the General Assembly approve the proposed scope, maximum overall cost and implementation strategy for the project; approve the establishment of two temporary positions (Local level) within the dedicated project management team; appropriate an amount of $676,700 for project activities in 2019; and approve the establishment of a multi-year construction-in-progress account for the project.

* A/73/150.

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I. Introduction

1. The present report is submitted pursuant to section V of General Assembly resolution 72/262 A, in which the Assembly approved the scope of work of the project for the renovation of the North Building at the Economic Commission for Latin America and the Caribbean (ECLAC) in Santiago as it relates to seismic mitigation. The Assembly also requested the Secretary-General to refine the proposal and to present a detailed analysis of the range of possible options to meet the objectives set out in his previous report on the project (A/72/367), in particular those relating to energy efficiency and reducing the environmental impact of the building's operation. The present report provides an update on the progress made since the previous report of the Secretary-General.

2. The project continues to be reviewed in accordance with the previously reported project objectives. The basis of the proposal is to dismantle the envelope and reconstruct the building, reutilizing its current structure, to attain a code-compliant, safe, functional and efficient office building resulting in an optimal asset with a renewed 40–50 years of useful life and that is conducive to a more productive, healthy and sustainable working environment. The proposed building would also provide the Organization with the most cost-effective way to avoid long-term energy costs and would also reduce operational and maintenance costs.

3. As described in the previous report of the Secretary-General, the project consists of a one-time capital renovation project that would result in a total cost of ownership over a 20-year period that would be approximately 15.5 per cent less costly than a phased, partial upgrade of the building. In addition, the project would provide a "net zero"[1] building, with a significantly reduced (zero) energy consumption, lower ongoing maintenance costs and the added benefit of extending the useful life of the building by 40–50 years.

4. ECLAC is highly committed to assisting and leading the region and civil society in achieving the 2030 Agenda for Sustainable Development through the construction of societies whose economic growth is based on sustainable development and equality. It is thus vital for ECLAC to lead by example and be consistent with Sustainable Development Goals 12 and 13, as a producer and consumer of energy, by reducing emissions, following the principles that the Commission is mandated to address and seeking to support the Goals through the implementation of beneficial technological features in the North Building.

5. The North Building renovation project, leading to a net zero building, would be consistent with the 2050 energy policy of the Government of Chile, by complying with criteria on sustainability and social inclusion and moving towards an efficient use and production of low-cost energy for industry and public use, thus having an impact on economic production and growth. The 2050 energy policy is aligned with Principle 10 of the Rio Declaration on Environment and Development and the relevant Sustainable Development Goals of the 2030 Agenda. Initial talks to consider support from the Corporation for the Promotion of Productivity of Chile, under the Ministry of the Economy, are being undertaken.

6. The present report summarizes the planning and related actions for the project to date and presents an update on: (a) the project governance, including the stakeholders committee and its working groups and the role of the Office of Central Support Services of the Secretariat in New York; (b) the project management team;

[1] A "net zero" building is one where the total amount of energy used by the building on an annual basis is equal to or less than the amount of renewable energy generated on site, often producing excess energy for use elsewhere.

(c) the project benefits; (d) space utilization and the current building assessment; (e) progress concerning temporary swing space; (f) a detailed analysis of the project's energy efficiency components; and (g) an updated overall cost estimate (see annex I) based on actual updated projections and the latest surveys, analysis and design information. The report also provides information on the status of recruitment of the Project Manager (National Officer) and actual expenditure to date.

II. Project objectives, benefits and core constraints

A. Objectives

7. The main project objectives established at the inception of the project plan are in line with the key objectives outlined in the report of the Secretary-General on the strategic capital review (A/68/733). The project objectives are:

(a) To meet international codes related to health and safety issues, including the following:

(i) Prevailing local seismic code related to preparedness and design against potential seismic events;

(ii) Fire and life safety planning and systems design, incorporating current evacuation standards and air, water and lighting quality criteria to conform to current norms, together with fire suppression, fire alarm and public address systems;

(iii) Incorporation of appropriate design features to increase accessibility and allow persons with disabilities to freely participate in the working environment;

(b) To reduce the North Building's energy consumption by 40 per cent as compared with existing conditions, by modernizing outdated major building systems, including mechanical, electrical, low-voltage, plumbing, conveyor and vertical transportation systems, so as to meet industry standards and code compliance and extend the building's useful life;

(c) To self-generate 100 per cent of the North Building's energy requirements by installing an off-the-grid photovoltaic plant as part of the project. This plant will also generate a surplus amount of energy that will be redirected to the other buildings on campus or sent back to the grid. It is important to note that the city of Santiago presents very favourable environmental conditions for this system, with an average of 89 per cent sunny days annually;

(d) To minimize the residual sanitary waste by implementing a sanitary water treatment plant that would allow cleaning and reuse of 100 per cent of the wastewater from the North Building for irrigation purposes, optimizing the use of freshwater resources;

(e) To improve conditions relating to indoor space quality, creating a productive and healthy environment for all by applying the following strategies: (i) installation of an enhanced ventilation system composed of high efficiency heating, ventilation and air-conditioning (HVAC) equipment, complemented with passive strategies (solar control, efficient facade and natural ventilation), that ensures good air quality and temperature conditions according to health standards; (ii) improving lighting conditions by complementing the design of a low consumption, high efficiency lighting system with a space layout that prioritizes open and public spaces located in relation to natural lighting;

(f) To improve space usage efficiency by maximizing the use of available work areas, conference facilities and meeting rooms, and introduce a more efficient, productive and inclusive work environment by applying a needs-based approach and aiming to provide various types of space tailored to diverse working requirements in ECLAC, including different approaches and solutions for each specific area;

(g) To incorporate appropriate design features to allow persons with disabilities to freely participate within the working environment, complying with prevailing local and international codes related to accessibility for persons with disabilities. The North Building project incorporates universal accessibility as a fundamental part of its design and architecture.

B. Benefits

8. As outlined in the previous report of the Secretary-General, the purpose of the North Building renovation project is to provide ECLAC with a safe working environment according to prevailing local codes and industry standards, within a healthy and efficient building that provides an innovative, productive and inclusive workplace to support the mission of ECLAC in Latin America and the Caribbean. The project incorporates both architectural and technological strategies to achieve high standards for energy efficiency, energy generation and wastewater treatment, with the consequent reductions in greenhouse gas emissions, as described below:

(a) With respect to energy consumption, it is projected that the replacement of obsolete, low performance systems and the utilization of high efficiency construction components will improve the Building's overall energy consumption performance. Based on the analysis of actual operational data of the North Building and digital simulations of efficient building components and low consumption systems, it is estimated that a 40 per cent reduction in the North Building's current electrical loads will be achieved;

(b) As part of the high efficiency strategy of the project, and taking into consideration geographical and weather conditions in Santiago, part of the project scope is the construction of a 2,000 m^2 photovoltaic plant on top of the North Building that would generate approximately 478,608 kilowatt-hours of electricity a year, which is equivalent to 115 per cent of the North Building's electrical load. This energy surplus (15 per cent) will be redirected, within the campus, to the electrical systems of other buildings, generating additional savings in the overall operational costs of the campus;

(c) As part of a water resource optimization process and taking into consideration that water is a scarce and costly resource in Chile, where seasonal droughts are a perennial problem, the reuse of water is of significant value and sends an important message to the population at large. ECLAC has already implemented important initiatives for the supply, treatment and reuse of water within the campus. This includes the construction, during 2017, of a water well with a depth of 170 m that is capable of supplying 100 per cent of water requirements at ECLAC. The North Building project design incorporates the construction of a wastewater treatment plant that will reuse 100 per cent of the North Building's wastewater for irrigation purposes. Projections show an estimated annual volume of 1,760 m^3 of recycled water, which would supply approximately 57 per cent of the irrigation requirements of the 21,500 m^2 grounds of the ECLAC campus;

(d) The project takes into account General Assembly resolutions 70/205 and 71/228, in which the Assembly requested the Secretary-General to plan significant actions aimed at integrating sustainable development practices into United Nations operations and facilities management, as the project will implement energy efficiency

and photovoltaic energy generation, which will result in a projected reduction of the North Building's annual greenhouse gas emissions equivalent to 104.7 tons of carbon dioxide. This reduction is equivalent to 10.4 per cent of the total annual facilities-related emissions of greenhouse gas (986.34 tons of carbon dioxide).

C. Core constraints

9. As presented in the previous report of the Secretary-General, the North Building's project schedule consists of four phases as shown in table 1. For these phases to proceed in accordance with the proposed timeline, the project scope and implementation plan would need approval by the General Assembly. A delay in the project schedule would result in a yearly 5 per cent escalation in the overall budget.

Table 1
Project phases

Phase	*Year*
Design	2019
Tender	2020
Construction	2021–2022
Commissioning and closeout	2023

10. In its audit of the management of capital renovation projects at ECLAC (report number 2018/046), the Office of Internal Oversight Services (OIOS) commented concerning the procurement activities for the construction project that inadequate monitoring of the implementation of the acquisition plan could delay the project and lead to cost overruns and ineffective use of ECLAC financial resources. With regard to establishing a procurement strategy for each of the project phases and requirements, periodic coordination meetings have been held with the participation of all related actors within the governance structure and with the technical guidance and oversight of the Office of Central Support Services.

11. Recruitment of the necessary human resources is being coordinated so as to avoid any possible delays in accomplishing the project objectives.

III. Project governance and team structure

A. Project governance

12. In accordance with the overall project governance structure set out in the previous report of the Secretary-General, which remains unchanged, the project owner is the Executive Secretary of ECLAC. The Executive Secretary has designated the Chief of the Division of Administration at ECLAC to supervise the project, including liaison and interaction with the stakeholders committee. The day-to-day project execution is under the leadership of a dedicated Project Manager.

Stakeholders committee

13. The stakeholders committee was established in March 2018 and the first meeting was held on 21 July 2018. The committee considers key project issues and provides advice to the project owner, with the aim of ensuring that the project remains

aligned with its objectives. The stakeholders committee is an internal body representing the core operational elements of ECLAC and includes the Office of Central Support Services as an ex officio member.

14. Working groups will be established within the stakeholders committee covering themes such as occupational health and safety, accessibility and sustainability.

Office of Central Support Services

15. The role of the Office of Central Support Services, in line with its role in other global capital projects undertaken by the Organization, was outlined in the previous report of the Secretary-General and remains unchanged. The Division of Administration at ECLAC is coordinating with the Office of Central Support Services through quarterly videoconferences and bilateral discussions as necessary.

16. Representatives from the Global Property Management Service of the Office of Central Support Services hold regular coordination meetings every other week with the ECLAC project team. The Global Property Management Service provides oversight of the project and technical guidance and advice to the project team, shares lessons learned from other capital projects and ensures that applicable global property-related policies are adhered to in the activities undertaken by the team. This collaboration also facilitates sharing of best practices and lessons learned from various global capital projects currently being undertaken by the Secretariat and enables the team to identify and address potential project risks early in the project.

17. During the reporting period, the Office of Central Support Services has placed emphasis on the provision of independent risk management services, in line with the recommendation of the Advisory Committee on Administrative and Budgetary Questions in paragraph 31 of its report contained in document A/72/7/Add.8, as endorsed by the General Assembly in section V of its resolution 72/262 A. To this effect, the Office completed the recruitment of an independent risk management firm, a well-established international firm with global construction and financial experience, to support the Office in fulfilling its project role. The firm was on board from October 2017 to work on the construction projects at the Economic Commission for Africa and the Economic and Social Commission for Asia and the Pacific (ESCAP), and began work on the ECLAC project at the beginning of 2018.

B. Project management

18. The recruitment process for the project manager position, approved by the General Assembly in its resolution 72/262 A, was completed in August 2018. Prior to this, the project manager duties were performed by the ECLAC Facilities Management Unit.

19. ECLAC is continuously reviewing the workload and resource requirements of the current and upcoming phases of the project. It is thus proposed that a project team comprising one Architect (Local level) and one Administrative Assistant (Local level) be established effective 1 January 2019 and remain in place until the construction phase is over. In addition, it is proposed that a position of Project Coordinator (P-3) be established from 1 January 2019 until the completion of the project and that the position be cost-shared with the proposed project for the replacement of office blocks A–J at the United Nations Office at Nairobi. It is proposed that ECLAC would contribute 25 per cent of the costs of the Project Coordinator and that the United Nations Office at Nairobi would contribute the balance. This position would be based in the Office of Central Support Services at Headquarters and would provide day-to-day oversight, guidance and technical support to the ECLAC project team. Descriptions of the functions of the two Local level positions are presented in annex II.

IV. Project accountability

20. The audit by OIOS of the management of capital renovation projects conducted during February and March 2018 covered the period from January 2016 to February 2018. Based on an activity-level risk assessment, the audit covered higher and medium risk management of capital renovation projects, which included a review of: (a) progress made on the establishment of the governance and oversight mechanisms and management team for the North Building project; (b) steps taken to assess the associated risks, including fraud and corruptions risks; and (c) procurement activities for construction projects. The audit also included actions taken to incorporate in the project design requests from the General Assembly related to provisions for persons with disabilities, energy efficiency and reducing the environmental impact of the North Building's operation.

21. OIOS concluded that adequate actions had been taken at that time by ECLAC in assembling a project team and establishing a stakeholders committee to oversee the project. An independent risk management function and an anti-fraud and anti-corruption framework were being established. OIOS also concluded that ECLAC was taking adequate action to ensure that provisions relating to accessibility and energy efficiency were being included in the renovated building and that ECLAC had developed a strategy for identifying and securing suitable swing space for the duration of the North Building capital renovation project.

V. Risk management

Independent risk management firm

22. The previous report of the Secretary-General identified the role of an independent risk management firm as part of the governance structure. The firm will report directly to the Office of Central Support Services and will provide advice on the establishment of a project-specific risk management framework and qualitative and quantitative risk analysis, including regular updates of the project risk register. Risk models will be used to determine whether the available contingency funding is adequate to cover foreseeable risks. In line with what has become, effective as of 2017, standard practice for ongoing global capital projects, the Office of Central Support Services, in consultation with the ECLAC project team, established a risk management strategy for the project. This strategy: (a) establishes processes and procedures for the identification and assessment of risks and prioritizing them in accordance with their evaluation; (b) once risks are identified, facilitates planning the implementation of risk responses that ensure a successful delivery of the expected project objectives; and (c) enables the Organization to assess and manage a risk-based contingency provision.

23. In July 2018, a qualitative risk assessment workshop was held, facilitated by the Office of Central Support Services and attended by the ECLAC project and technical teams and representatives from the independent risk management firm. The outcomes of the workshop were the project risk management strategy and a project risk register. The independent risk management firm will also produce two annual reports during project delivery, the first of which was issued in August 2018.

24. A risk workshop will be conducted in the first quarter of 2019, when more detailed information will be available, including clarity on the precise scope of the project, if approved by the General Assembly. The workshop will be held at ECLAC, facilitated by the Office of Central Support Services with participation from the stakeholders committee, the project team and the project consultants. At that time, a

quantitative analysis of risks relating to costs and schedules will be conducted in order to generate a Monte Carlo analysis.

Integrated risk management

25. Integrated risk management is being performed at the local level by the ECLAC project management team, which will be supported by the consulting firm once it is on board. In the meantime, the Office of Central Support Services, in coordination with the independent risk management firm, will continue to support ECLAC in this area during the various project phases, including the design stage.

26. The risks that were given high priority during the present reporting period relate to planning and design baselines for the renovation nature of the scope of works, unknown interior construction conditions and the engineering of major systems such as mechanical systems and the exterior enclosure, in order to establish procurement requirements for items with a long lead time.

Risk register

27. Building upon the qualitative risk assessment workshop held in July 2018, the project team will refine the approach to populating and managing the risk register in line with the newly developed project risk management strategy. All risks will be given scores and assigned a risk owner, and proposed responses will be listed. Risks will be monitored, controlled and mitigated by the project team. In accordance with the risk management strategy, emphasis will be placed on the 10 highest risks that potentially pose the most threat to the project.

Description of highest three project risks with the proposed risk response

28. **Exterior enclosure and roofing.** The exterior enclosure and roofing comprise some of the highest cost-estimate line items for the project. The cost of window wall facades has historically fluctuated significantly on the basis of market conditions that may be affected by natural disasters such as earthquakes. In addition, the exterior enclosure could possibly be manufactured in countries other than Chile, thus requiring a longer lead time for procurement, manufacturing and importation. The facade is typically one of the highest-risk items for building construction as it is susceptible to manufacturing defects and assembly challenges, which can lead to leaks or other maintenance challenges. The roofing and the superstructure requirements (such as solar panels and skylights) for the building have also yet to be designed. As a risk mitigating measure, the lead consulting firm will include a facade engineering consultant to assist with the management of the design, manufacturing and assembly of the building facade. In addition, the lead consulting firm will accelerate the design of the exterior enclosure and roofing to better define superstructure requirements, layouts, skylights and integration with the solar panel design. It will also perform detailed site surveys to reduce the risk of unknown site conditions and accelerate procurement of the design firm and facade-related procurement.

29. **Interior construction.** Interior construction includes the scope for drywall, ceiling systems and furniture and is one of the largest project cost line items. Numerous alternatives are being considered for the interior layout, which may produce cost variances. The current plan is for an open layout that may help to facilitate flexible workspace arrangements. This risk can be mitigated by: (a) accelerating the design layout and proactively obtaining buy-in from key stakeholders; (b) identifying potential weaknesses of assumptions on which the design is based and performing detailed surveys of the building prior to sending out tenders to uncover as many unknown conditions as possible; (c) involving the contractor in the assessment and reassessment of designs and identifying alternative

solutions (value engineering); and (d) ensuring close monitoring during the design and execution of contract documents to anticipate consequential costs.

30. **HVAC building costs.** Owing to the existing HVAC systems at ECLAC and the shortage of equipment suppliers, the major HVAC equipment for the project will need to be imported, resulting in scheduling risks related to long lead times for procurement, manufacturing and importation. Pricing may vary based upon timing and market conditions. The interior layout will also need to be developed and closely coordinated with the HVAC design. A mitigating measure for this risk would be to accelerate and prioritize the HVAC design, specifications and procurement activities to address the risk of the long lead time for procuring and importing major equipment and to define the critical interior layout elements to allow for the HVAC design and procurement work to proceed in advance of addressing the needs for other equipment.

VI. Progress made on the project during the reporting period

A. Cooperation with Member States and the host Government

31. The host country has provided significant support for United Nations operations in Chile and specifically for the ECLAC compound. The ECLAC headquarters building was constructed in 1965 on a five hectare lot donated by the Government of Chile in 1960. The needs of ECLAC continued to grow and in 1997 the Government donated an additional two plots, increasing the total area to 5.9 hectares. A host country agreement was established in February 1948, providing for privileges and immunities, including duty exemption for contracts and importation of materials for official purposes, such as construction materials, equipment and infrastructure. These benefits would be extended to any construction project, leading to reduced overall cost and expedited importation arrangements through the established host country liaison arrangements.

B. Voluntary contributions

32. During the reporting period, consultations with the host country and others have been ongoing with regard to possible voluntary contributions.

33. The North Building project, as a net zero building, will be consistent with the Government's 2050 energy policy and Sustainable Development Goals 12 and 13. In this regard, consultations to consider support from the Production Development Corporation, under the Ministry of the Economy of Chile, are being undertaken. ECLAC has actively collaborated on the Corporation's "CONSTRUYE2025" programme, which includes sustainability as an additional factor in reducing operational costs and improving construction standards.

C. Procurement activities

34. As indicated above, in order to establish a procurement strategy for each of the project phases and requirements, monthly coordination meetings between the project management team and the procurement team at ECLAC are being held to revise, monitor and update all North Building project processes.

35. The project management team is actively developing acquisition plans in cooperation with the Procurement Unit of ECLAC for construction services scheduled to be procured during 2020.

D. Local knowledge and lessons learned

36. In accordance with General Assembly resolution 72/262 A, the Secretary-General, through the Office of Central Support Services, takes into account lessons learned and best practices from past construction and renovation projects in implementing the North Building project, in particular with respect to: (a) drawing from local knowledge, technology and capacity throughout the implementation of the project; and (b) taking into account lessons learned and best practices from previous construction and renovation projects within the United Nations.

37. In accordance with section V, paragraph 8, of General Assembly resolution 72/262 A, in which the Assembly requested the Secretary-General to present a detailed analysis of the range of possible options to meet the project objectives, in particular those related to energy efficiency and reducing the impact of the building operations, ECLAC made inquiries with local entities to learn more about energy-efficiency initiatives employed in their own projects. In addition, ECLAC interviewed several specialists on each of the energy efficiency components to be included in the project to determine effectiveness, costs and market availability.

38. Several net zero buildings have been analysed by the project team to review their energy efficiency solutions, architectural concepts, investment costs and use of technology.

39. As part of the Inter-Agency Network of Facilities Managers meeting held in Bangkok during May 2018, the North Building project concept design was presented by ECLAC. This led to knowledge-sharing of current trends and best practices carried out in other United Nations capital projects, including the ESCAP seismic mitigation project.

E. Consulting services

40. The acquisition of consultancy services is a critical requirement for the project and is programmed to begin in early 2019. The current scope of work is under development and includes services for: (a) architecture; (b) structural engineering; (c) HVAC engineering; (d) electrical and photovoltaic engineering; (e) wastewater and hydraulic engineering; (f) lighting specialists; (g) landscaping; (h) facade engineering; (i) low voltage specialists; (j) safety and security specialists; (k) automatization specialists; and (l) energy efficiency specialists.

41. The Procurement Unit of ECLAC, with the assistance of the dedicated project management team, is in the process of developing the documentation to undertake market research to find both local and international architectural and engineering firms with experience in net zero buildings and energy efficiency design. A request for expressions of interest will also be issued through the United Nations Global Marketplace.

F. Planning and design activities

42. Given that projects proposed under the strategic capital review aim to provide the Organization with more modern and flexible working environments, ECLAC conducted a space utilization analysis with the assistance of an external consultancy firm and in line with the methodology established by the Office of Central Support Services. The results were analysed to understand the space utilization and to propose specific strategies for implementation in the ECLAC environment.

43. A space utilization study of the workspace efficiency in ECLAC was carried out by external consultants during 2017. The overall presence of staff at their workplaces (utilization rate) averaged 53.9 per cent. Understanding that ECLAC is a think tank focused on research, training, analysis and assistance to the region, the space utilization analysis reflects the specific type of work and particular requirements of the substantive divisions of the Commission. A flexible workplace strategy will provide appropriate solutions for different functional working areas and requirements that best meet the local needs.

44. Based on the conclusions of the space utilization analysis, ECLAC is in the process of undertaking a thorough design exercise that takes into consideration group/team working areas for multidisciplinary teams to continuously interact; open working areas with soft seating to be supported by Wi-Fi services throughout the building and within public areas; open shared areas for interns, visitors and administrative support functions; and appropriate classrooms, auditoriums and meeting and conference rooms. Enclosed office space will be provided for those working in research and analysis functions that require quiet and privacy.

45. At this early stage of project development, given that the design phase has not yet begun, it is not possible to provide projections of increased utilization targets to be achieved through the application of flexible workplace strategies adjusted to the local conditions. Updates will be provided in future reports of the Secretary-General.

G. Other matters

46. As part of the North Building project, the use of technology for building information modelling and technical analysis is fundamental to improving management aspects and cost control at all stages of the project and for monitoring and gathering benchmarking data throughout the design, construction, operation and future maintenance of the new building.

47. Up to now, digital building information modelling tools have been used to define the technical requirements. These tools have allowed for simulations and analyses and inclusion of construction components, systems and equipment in the project, determining performance and costs and setting the project base for the design phase through the following tasks:

(a) Architectural modelling of existing buildings within the ECLAC campus;

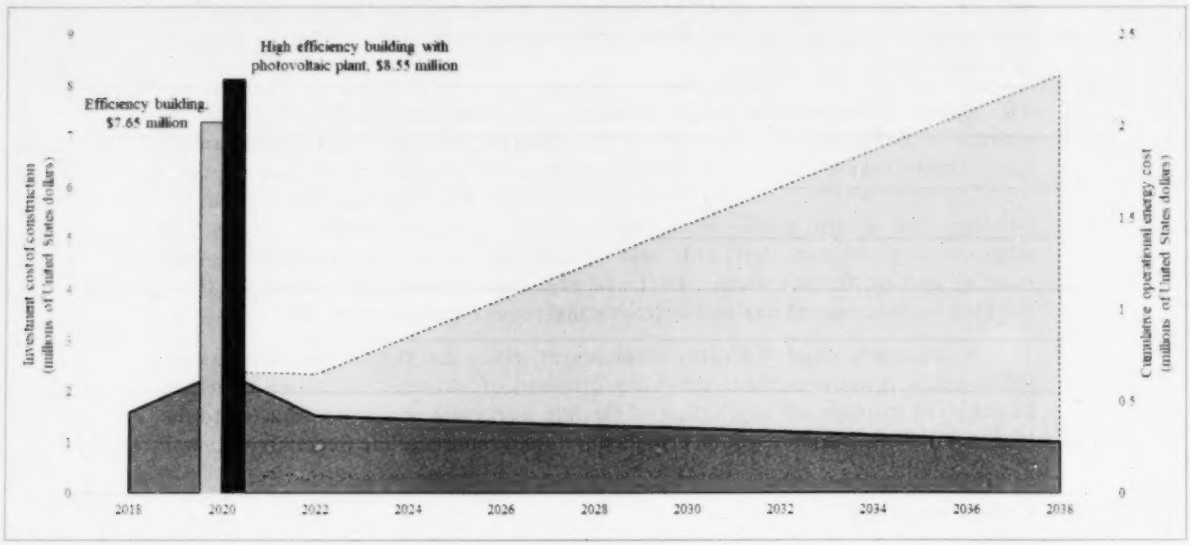
(b) Performance and efficiency analysis for current and projected North Building components to determine energy requirements, thermal behaviour and performance conditions so as to define the new building's technical specifications.

48. In line with the General Assembly's request to present a detailed analysis of the range of possible options to meet the objectives relating to energy efficiency and reducing the environmental impact of the building's operation, the project team set out to analyse the feasibility of using photovoltaic energy. The weather conditions measured by the Ministry of Energy of Chile, through satellite information and on the basis of a report on the potential for photovoltaic electricity generation,[2] show that the low percentage of cloudy days in the city of Santiago (10 per cent yearly average) provides favourable conditions for a photovoltaic plant, which would transform solar radiation into electricity. The estimated cost of the photovoltaic plant for the North

[2] Report using "solar explorer", an online tool developed through collaboration among the Ministry of Energy of Chile, the German Agency for International Cooperation and the Department of Geophysics of the University of Chile.

Building project is $900,000. This plant will supply the total energy load of the building, which today costs $70,000 annually.

Figure I
Comparison energy costs



49. Figure I compares the construction costs and the cumulative operational energy costs of two alternatives for the North Building, namely: (a) a high-efficiency building; or (b) a high-efficiency building with a photovoltaic plant. The lines show the cumulative energy expenditures for each alternative. This figure indicates that ECLAC would benefit from over $2 million in energy cost savings over a 25-year period with the installation of a photovoltaic plant.

H. Status of construction efforts

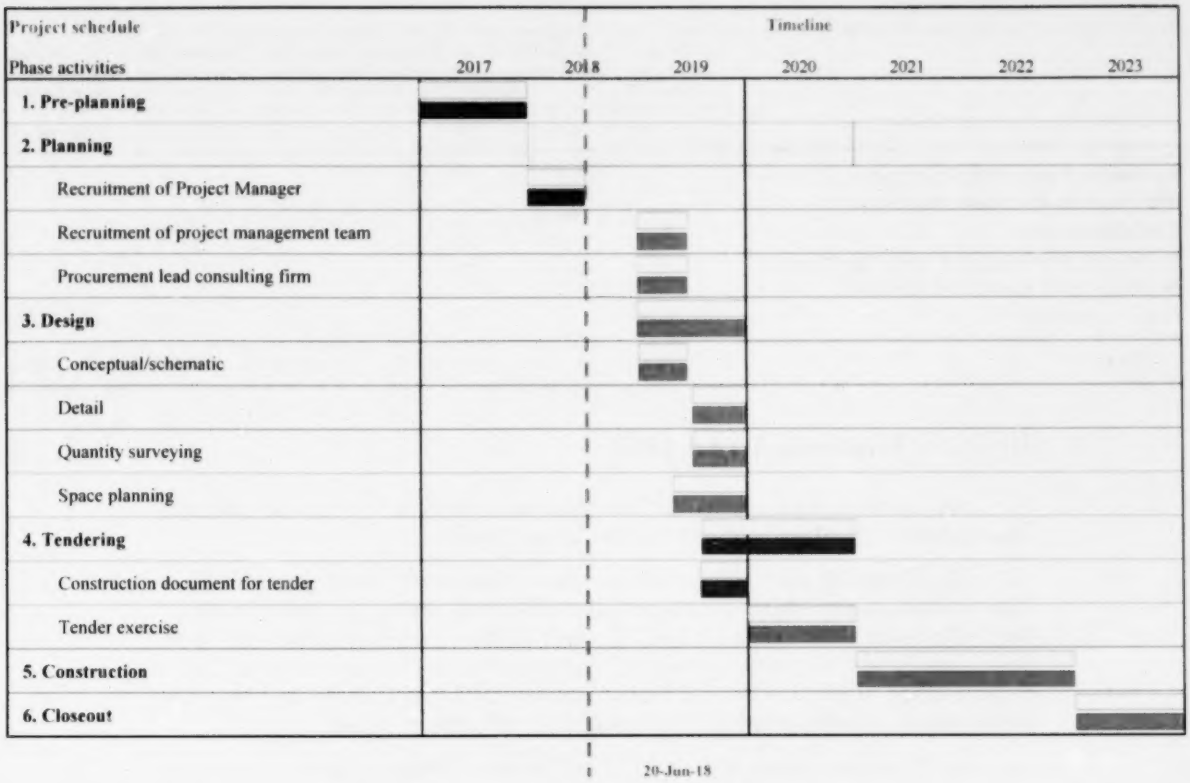
50. As part of the swing space strategy for the North Building project, during the first quarter of 2018 construction works were completed at the ECLAC Printing Building.[3] This project included the retrofitting of a 700 m^2 building to be used as swing space for 73 staff for the duration of the upcoming construction works. These works were finalized in March 2018.

I. Project schedule updates

51. Figure II provides an updated project schedule, indicating activities completed by 30 June 2018. There have been no changes, except for the recruitment of the project management team and the procurement of the lead consulting firm, as compared with the schedule presented in the previous report of the Secretary-General.

[3] Functional retrofitting of the Printing Building was part of ECLAC major maintenance projects approved by the General Assembly under section 33, Construction, alteration, improvement and major maintenance for the biennium 2016–2017.

Figure II
Project schedule



VII. Project expenditures and anticipated costs

A. Status and projections of project expenditure in 2018

52. The status of expenditure as at 1 July 2018 and projected expenditures for the remainder of 2018 are provided in table 2. It is projected that there will be an unspent balance of $35,000 at the end of 2018, reflecting slightly lower expenditure under project management because the Project Manager was recruited in August 2018.

Table 2
Status and projection of project expenditure in 2018
(Thousands of United States dollars)

	Appropriated project funding for 2018	*Cumulative expenditure from project start up to 30 June 2018*	*Projected expenditure from 1 July to 31 December 2018*	*Total projected expenditure for 2018*	*Projected unused balance at end of 2018*
	(a)	*(b)*	*(c)*	*(d) = (b) + (c)*	*(e) = (a)-(d)*
Section 33, Construction, alteration, improvement and major maintenance					
Risk management	80.0	–	80.0	80.0	–
Section 21, Economic and social development in Latin America and the Caribbean					
Project management	80.0	–	45.0	45.0	35.0
Total	**160.0**	**–**	**125.0**	**125.0**	**35.0**

B. Resource requirements for 2019

53. The resource requirements for 2019 are shown in table 3. The total projected expenditure for 2019 amounts to $711,700, comprising:

(a) $266,700 under section 21, Economic and social development in Latin America and the Caribbean, for the project management team. This will provide for the continuation of the existing Project Manager (National Officer), 25 per cent of the cost of one Project Coordinator (P-3) at Headquarters, cost-shared with the project to replace office blocks A–J at the United Nations Office at Nairobi, and two new positions (Local level) proposed to be established effective 1 January 2019;

(b) $445,000 under section 33, Construction, alteration, improvement and major maintenance, for professional services related to the lead consulting firm, the risk management firm and provision for contingencies.

54. Taking into account the unused balance of $35,000 at the end of 2018, net funding requirements in 2019 amount to $676,700.

Table 3
Resource requirement in 2019
(Thousands of United States dollars)

	Projected expenditure in 2019	*Projected unused balance at end of 2018*	*Net funding requirement in 2019*
Section 33, Construction, alteration, improvement and major maintenance			
1. Construction costs	–	–	–
2. Professional services	410.0	–	410.0
3. Escalation	–	–	–
4. Contingency	35.0	–	35.0
Subtotal	**445.0**	**–**	**445.0**
Section 21, Economic and social development in Latin America and the Caribbean			
5. Project management	266.7	35.0	231.7
Total	**711.7**	**35.0**	**676.7**

VIII. Next steps

55. Should the General Assembly authorize the Secretary-General to commence the project in 2019, the immediate next steps would be as follows:

(a) Tender for the lead consulting firm services, including architects, engineers and specialists, so as to begin the design phase in early 2019;

(b) Recruit the dedicated project management team members (one Architect and one Administrative Assistant) beginning from January 2019;

(c) Commence the definition of scope and design for additional required on-site swing space;

(d) Proceed with coordination meetings with all project stakeholders to review all necessary stages for the North Building project;

(e) Conduct a risk management workshop in the first quarter of 2019.

IX. Recommended actions to be taken by the General Assembly

56. **The General Assembly is recommended to:**

(a) **Approve the proposed overall scope of the project and its maximum cost and implementation strategy;**

(b) **Approve the establishment of two temporary positions (Local level) effective 1 January 2019, within the dedicated project management team, under section 21, Economic and social development in Latin America and the Caribbean, of the programme budget for the biennium 2018–2019;**

(c) **Take note of the proposed establishment of the position of Project Coordinator (P-3), for which approval has been sought in the context of the project for the replacement of office blocks A–J at the United Nations Office at Nairobi, and the joint funding of that position within the overall costs of both projects;**

(d) **Appropriate an amount of $676,700 for the project in 2019, comprising $231,700 under section 21, Economic and social development in Latin America and the Caribbean, and $445,000 under section 33, Construction, alteration, improvement and major maintenance, of the programme budget for the biennium 2018–2019, which would represent a charge against the contingency fund;**

(e) **Approve the establishment of a multi-year construction-in-progress account for the project.**

Annex I

Revised cost plan

(Thousands of United States dollars)

	2018	2019	2020	2021	2022	2023	Total
Section 33, Construction, alteration, improvement and major maintenance							
1. Construction costs							
1.1 Building costs				3 259.0	3 059.0	–	6 318.0
1.2 Energy efficiency systems				885.0	885.0	–	1 770.0
1.3 Swing space costs				200.0	200.0	–	400.0
1.4 Physical security system	–	–	–	231.0	231.0	–	462.0
2. Professional services							
2.1 Consultancy	–	350.0	53.0	125.0	125.0	53.0	706.0
2.2 Risk management	80.0	30.0	30.0	30.0	30.0	–	200.0
2.3 Other services	–	30.0	15.0	20.0	20.0	–	85.0
3. Escalation	–	–	–	712.0	931.0	14.0	1 657.0
4. Contingency	–	35.0	5.3	521.2	523.1	6.7	1 091.3
Subtotal	**80.0**	**445.0**	**103.3**	**5 983.2**	**6 004.1**	**73.7**	**12 689.3**
Section 21, Economic and social development in Latin America and the Caribbean							
5. Project management							
5.1 Dedicated project management and support	80.0	245.3	307.7	307.7	307.7	307.7	1 556.1
5.2 Project Coordinator at Headquarters (25 per cent of costs)	–	21.4	37.8	37.8	37.8	–	134.8
Subtotal	**80.0**	**266.7**	**345.5**	**345.5**	**345.5**	**307.7**	**1 690.9**
Total	**160.0**	**711.7**	**448.8**	**6 328.7**	**6 349.6**	**381.4**	**14 380.2**

Annex II

Roles of the project positions proposed to be established effective 1 January 2019

Architect (Local level). The position is responsible for direct monitoring of the various contractors, construction sites and surroundings, inspection of all materials incorporated into the project for quality, adherence to the specifications and compliance with appropriate building regulations, monitoring of the inspection of the workmanship and practices of contractors and crews engaged in the construction, including safety at the construction site insofar as execution of the construction work is concerned, and monitoring of the progress of work, including construction work schedules to check that progress is maintained. The Architect will also be responsible for drafting punch lists and will assist the Project Manager with ongoing monitoring and bringing the project to a close, which may include project reports and evaluation documents.

Administrative Assistant (Local level). The position will report directly to the Project Manager and would be primarily responsible for preparing analysis and business reports as they apply to administrative, budgetary and finance requirements in compliance with the Financial Regulations and Rules of the United Nations, the International Public Sector Accounting Standards and Umoja requirements. In addition, the incumbent would perform a range of essential tasks in the project office, including documentation control; drafting correspondence and reports; distributing meeting agendas and recording meetings; responding to enquiries from project stakeholders; assisting the project team in other administrative tasks as needed; and undertaking other duties such as account reporting, account monitoring control and general administrative functions.